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A COMPARISON OF THE ORAL AND WRITTEN RECALLS OF GRADE FOUR AVERAGE READERS

by

(C) BILKIES McKEN

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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Date: January 15, 1984

This thesis is dedicated in memory

of

my Mother and Father

ABSTRACT

The purpose of this study was to investigate the differences between oral and written recall in terms of the nature of the information retrieved.

A sample of 40 grade four average readers was selected randomly from five Edmonton Public Schools. These were further randomly dichotomized into two groups of speakers and writers. Average readers were selected on the basis of their performance on the Edmonton Public Schools Reading Test while speaking and writing abilities were rated by the teachers.

Each subject was required to read an informational passage silently. The "speaker" group was asked to tell the information back while the "writers" in groups ranging from 2-5, were required to write down all they could remember.

Statistical treatment of the data included a one-way analysis of variance with repeated measures on the mode of recall to determine whether there were any significant differences between oral and written recalls.

The findings revealed no significant differences between oral and written recalls in terms of the nature of information retrieved with the exception of one category in which recalls were minimal.

It was concluded that, the written mode is as valid as the oral mode for assessing information retrieved by grade four average readers.

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CHAPTER I

INTRODUCTION AND THE PROBLEM

The Problem

> Data from a recall is a measure of what the reader has understood and remembered. (Fagan, 1984)

Pedagogically speaking, often teachers and clinicians measure students' comprehension by asking them either to tell or write what they have understood and remembered from a passage read.

As students move into grade four and throughout the upper elementary school, they are required to learn and acquire new knowledge via many routes. Students are usually required to take notes (summaries) after they've read or listened to lengthy passages, and listened to classroom lectures, discussions, speeches and presentations. These recalls in the form of essays, summaries or general note taking, all convey to the teacher how much the student understands from what he/she remembers about the text. Also, of course, teachers have students report orally on what they have read and learned. The question that arises, is whether the information conveyed orally and in written form is comparable for the purposes of evaluation.

Research has shown that there exist many differences in these two modes of expression - speech and writing. For example, speakers often tend to repeat themselves or quote information that is verbatim to the text after they've read. Perhaps the Russian psychologist, Vygotsky, (1967) best describes the differences in speech and writing. In a

passage cited from Doestoevksy, he writes:

> In conversation, every sentence is prompted by a motive . . . the changing motives of the interlocutors determine at every moment the turn oral speech will take . . . The motives for writing are more abstract, more intellectualized, further removed from immediate needs . . . This demands detachment from the actual situation (p. 99).

Sulzby (1981) would agree with Vygotsky that oral language is more contextually bound and written language is rather decontextualized. On the other hand Fish (1980) disagrees with the notion of written language being context free. Written language is merely assigned a new context in terms of linguistic conventions. Although using different terminology to describe the written language content, Smith (1982) would concur with Fish.

Regardless of the rhetoric used, there do seem to exist differences in context between oral and written language. Granted that this argument holds, then realistically, differences would seem to exist in the language of oral and written recall. Therefore, in order to assess comprehension more accurately, the teacher/clinician should be aware of the strategies children use in either or both modes of expression. Unfortunately, there exists a paucity of relevant research in this area. As a result, the educator does not know how, or to what degree, a child is constrained by text information and prior knowledge in either mode of expression.

Meaning is derived from an integration of many factors. The cues in the incoming linguistic message (print) serve to trigger off information possessed (world knowledge possessed by the reader) and a

newer meaning (from the two) is formed or reconstructed. Tierney, Bridge and Cera (1978) in speaking of Bartlett's Remembering point out that:

> [he] concluded that memory for discourse is an active process of reconstruction in which the present knowledge system of the individual forms a schema that interacts with the new information in the text (p. 542).

According to Fagan (in preparation, 1984) the interaction between reader and text may result in three types of processing which will influence the nature of the information retrieved. These are reproduction, repro-construction, and reconstruction.

In reproducing text, a reader stores information rather verbatim and retrieves this in almost exact form. Instead of storing information in a specific or verbatim manner, a reader may construct new information which is then stored and retrieved or reproduced in a similar manner, that is, the reader engages in repro-construction. A reader reconstructs data at recall when he cannot retrieve the information in the form stored at the time of input, and generates a new framework of data from the bits of information available from input and from prior knowledge.

The question that remains unanswered, is whether the mode of output - oral versus written - affects the nature of the recall process and results in different information being retrieved.

Purpose of the Study

The purpose of this study was to compare the oral and written

recalls of average readers in grade four in terms of the nature of the information retrieved.

Definition of Terms

Recall

Verbal or written responses of information retrieved from a passage read silently. This is assumed to be the subject's measure of meaning for the passage.

Oral Recall

Spontaneous verbal expression of information retrieved after reading a passage.

Written Recall

Spontaneous written expression of information retrieved after reading a passage.

Recall Categories

The following recall categories devised by Fagan (1984) will be used to categorize the information retrieved.

A. Text Exact
This category includes information from the text in its exact form or with minimal variations, such as substituting "a" for "the".

B. Text Specific
In this category is placed information that has specific references within a single text unit. The information within the unit may have been reordered or transformed with different lexical items.

C. Text Embedded
The information in this category is also specific to the

text but the unit of recall includes information from more than one unit of the text, that is, data from one unit are embedded in another in a fairly specific manner.

D. Text Entailed
The retrieved information consists of a superordinate statement that subsumes information from more than one unit of the text.

E. Text Inferential
The information assigned to this category has been added by the reader to fill in gaps in the text data and is derived from knowledge schemas or world events.

F. Text Experiential
Like inferential data the information assigned to this category, while related to the text, is generated from the reader's schema. Unlike inferential data, experiential data are not constrained by the text and may be idiosyncratic to the reader's experiences.

G. Text Erroneous
This category contains information that is erroneous in the sense that it contradicts or is inconsistent with text data or is inaccurate in terms of world knowledge.

Informational Passage

Written material that contains facts, opinions and explanations as opposed to the elements of a narrative (characters, plot, resolution etc.). For this study, the informational passage described and explained the role of the totem pole in the lives of native people.

Average Readers

Those subjects in grade four who achieved between the 55.9 (mean) and 69th (upper limits of one standard deviation) percentiles on the comprehension section of the Edmonton Public Schools Elementary Reading Test given in May, 1983.

Research Question

Will the oral and written recalls of grade four average readers differ in terms of the nature of the information retrieved as described by the following categories:

A - Text Exact

B - Text Specific

C - Text Embedded

D - Text Entailed

E - Text Inferential

F - Text Experiential

G - Text Erroneous

Hypotheses

While oral and written language theories indicate differences between the two modes of expression, research does not provide any direction as to the differences in a recall situation. Consequently, no research hypothesis was indicated. Instead, the following null hypotheses will be tested.

1. There will be no significant difference between the length of oral and written recalls in terms of number of clauses/incomplete t-units.

2. There will be no significant differences between the oral and written recall of grade four average readers in terms of the nature of the information retrieved as described by each of the following categories.

A - Text Exact

B - Text Specific

C - Text Embedded

D - Text Entailed

E - Text Inferential

F - Text Experiential

G - Text Erroneous

Delimitations

1. The sample for this study consisted of grade four students who were average readers (as measured by a standardized achievement test) and of average ability in speaking and writing (as rated by the classroom teacher). Consequently, generalizations can only be made to the population from which the sample was drawn.

2. Likewise, generalizations from the data are restricted to reading and recalling information from an information type passage.

Significance of the Study

Since the focus of the study is on the cognitive strategies children employ when telling and/or writing what they have read, it will add to our theoretical and practical knowledge of the strategies used when expressing information orally, or in written form. The study should indicate the similarities and the differences in the nature of what has been recalled in these two modes of communication. Since teachers and clinicians frequently assess a child's understanding of information read via both modes, the results of this study will

hopefully provide greater insight into the similarities and differences of the information retrieved in both modes. The study will also constitute a further test of the validity of the Category System for Recall Analyses as a method of evaluation.

Plan of the Investigation

Chapter I contains the introduction and statement of the problem, the purpose of the study, definition of terms, research question and hypotheses that guided the investigation. Included also, are the delimitations and the significance of the study. Chapter II presents a review of the related literature and research. Chapter III details the design of the study. In Chapter IV the findings are presented with a discussion of the results. Chapter V concludes with a summary of the study, findings and conclusions, and implications of the study with suggestions for further research.

CHAPTER II

RELATED LITERATURE

Introduction

Research pertaining to oral and written recall in terms of the nature of the information retrieved has been derived mainly from the fields of reading and psychology. Recent investigations which have compared the cognitive strategies used by speakers and writers when recalling information will be included in this chapter. The chapter is divided into three parts. The first part deals with written recall as a measure of what people remember. The second part deals with oral recall as a measure of what people remember, while the third section describes studies which compare the oral and written recalls of various input.

Written Recall as a Measure of What Subjects Remember

Written recall of information read has been frequently used as a measure of the degree and the nature of information retained. Perhaps one of the earliest studies that has been significant in helping educators understand the retrieval of information read, was conducted by Bartlett in 1932. When studying readers' recalls of stories of different cultures, be pointed out that readers' recalls were influenced by their schemas for what stories were like. It was not until the 1970's, however, that many systems for making comparisons of text input and recall protocols were developed.

Kintsch (1974) developed an elaborate system based on the "proposition" which he defined as an idea unit containing a "predicate" and one or more "arguments". In the unit "the dog barks", "dog" would indicate the argument and "barks", the predicate. It was Kintsch's belief that as readers read, they would organize the many individual propositions (micro-propositions) into larger idea units (macropropositions). Research by Kintsch and his colleagues attempted to describe the propositional nature of the recalls, and/or factors affecting these recalls.

In an experiment by Kintsch and Keenan, (1973) to determine whether the number of propositions in the semantic base of a sentence affects the time required by the subjects to read the sentence and store it in memory, they selected 29 undergraduates from the University of Colorado. Slides were made for all sentences and shown on a Kodak Carousel projector. As soon as the subjects were finished, a button was punched, the sentence was removed and after punching a second timer, signalling the beginning of the recall, subjects wrote. The instructions emphasized that a verbatim account was unimportant. They were also to work as fast as possible. The recall protocols were scored for propositional recall.

Not only did the researchers from this evidence conclude that the number of propositions in the text input did influence memory, but also, that superordinate propositions or propositions at the macrolevel, were recalled better than were subordinates or microlevel propositions.

A second study by Kintsch, Kozminsky, Streby, McKoon and Keenan

(1975) was conducted to determine whether the number of different arguments in a text base affected reading and recall. This time, the subjects could take as much time as possible for the recall, and the recall could include verbatim responses. It was discovered that overall, text bases in which only a few different arguments were used required less time than propositions from text bases in which the arguments varied considerably.

Kintsch and van Dijk (1978) elaborated on Kintsch's propositional structure and described the strategies readers use to store information at input and recall it later. They believed that during recall, readers may reproduce, transform, or reconstruct information.

Reproduction includes the actual word for word (verbatim) account of the text propositions. Transformation involves altering propositions by either reordering, explicating, substituting or changing perspectives. Reconstruction involves integrating text and would also include making inferences based upon prior knowledge.

In order to test this theory Kintsch and van Dijk (1978) asked a number of subjects to recall a passage, "Bumperstickers and Cops". The subjects recalled the information immediately, one month later, and again three months later. The subjects typed their protocols on a computer controlled screen and also edited these protocols. Subjects were then asked to write a summary of the report.

Kintsch and van Dijk (1978) found that while the output in quantity of words changed little, there was quite a difference in the quality of the compositions. They discovered that subjects reduced the amount of reproductive information over time while on the other hand

reconstruction almost doubled. Metastatements, or comments on their recalls quadrupled. A similar trend was found in the summaries, although it was not as pronounced. These results led the author to conclude that recall involved reproduction, transformation, and reconstruction of text information and this confirmed their theory of production.

A second type of analysis used to study written recalls was the story grammar. Story grammars consisted of sets of rules to describe the make-up or organization of a story. Thus, rules were developed to account for relationships between story components such as setting (place, time, characters), goals, plot or action, reaction, outcome, and end. Recalls were analysed to determine the relationship of components in the recall as compared to the relationship of such components in the input. Kintsch's "proposition" was used as the unit of information in allocating data to various story parts.

Thorndyke (1977) conducted an experiment to determine whether the nature of the story structure used for input influences the nature of the recall. Subjects were 64 undergraduate students from Stanford University. Two passages were presented either visually or auditorially. In the passage presented orally, there was control of inflections and intonations which might bias the presence of temporal or causal connections. Subjects were asked to give a written recall of the passages. Unlimited recall time was provided and subjects were asked to recall as verbatim as they wished, but they could paraphrase, rather than exclude any relevant piece of information because they could not recall the exact terminology. After the recall of both

passages were completed, subjects were asked to write from memory short summaries of each passage. The passages were segmented into propositions for scoring. In general, these results were similar to findings of the study by Kintsch et al (1975); that is, the recall was influenced by propositions located high in the text hierarchy.

A third type of work such as that by Frederiksen (1977) focussed on the extent to which the reader's recall strategies were influenced either by text information or by prior knowledge.

In a study by Frederiksen (1975a), university students were asked to listen to a descriptive passage, "Circle Island", and to recall what they heard in language that was not verbatim. There were four oral presentations of the text and subjects recalled in writing, immediately after presentation.

Analysis of these recalls focussed on the semantic content of the text as a set of conceptual classes representing objects, states or events. These concepts were defined in terms of relationships between concepts as opposed to representing specific lexical units. The overwhelming result was that overgeneralization (information reduction) and inferential processing increased as the production of specific lexical or semantic units decreased. Frederiksen stressed that inferred relations appeared to be independent of lexical meaning. Consequently, he maintained that inferencing was more than just a retrieval strategy.

Meyer's work (1981) has focussed on delineating the organizational structure of information type passages. A study by Meyer, Brandt and Bluth (1980) analysed the recall protocols of high

and low reading comprehenders at the ninth grade level, in order to determine the relationship of strategies used to the organization of the text structure. The results showed that those students high in reading comprehension skills recalled information consistent with the organization used by the authors (problem - solution and comparison). Students who used the strategy of focussing on the text's top level structure, also retrieved more information and were better able to distinguish between information central to the overall structure as opposed to information more peripherally related to the text's top level structure.

Brown (1983), one of the few researchers to use children as subjects, investigated the development of strategies used in recall and summary writing when the material had been learned. Her subjects were average readers at four levels - grade five, grade seven, grade eleven and first year college students. The stories used in the experiment were simple and well formed according to story grammar rules. Each subject took two stories home in order to learn them very well. One week later, subjects wrote a recall and were then asked to write a summary of what they recalled. They were given an extra sheet to "scratch" on. While writing the summary, a copy of the story was also available.

The results from Brown's investigation revealed that the common strategy used by fifth graders was what she termed the "copy-and-delete" strategy. The written recalls were more verbatim from both fifth and seventh graders. The older students on the other hand provided more paraphrase. The same tendency was discovered in the

summaries. The younger students tended to summarize using more verbatim translations, while the older students tended to condense while paraphrasing. She concluded that younger students did not plan ahead to the same extent as adults, but if they did, their performances were on par with the adults. These findings of Brown concur with those of Hayes and Flower (1978) that in providing a recall, writers tend to employ such substrategies as generating and organizing.

Summary

An overview of the written recall of selected input indicates that subjects employ various strategies and are influenced in their recall by the nature of the input. Specifically, two findings seem to emanate from the research: (1) subjects use a variety of strategies, such as organizing data in various ways to recall information, and (2) the recall is influenced by the nature of the text and the relationship of information in the text.

Oral Recall as a Measure of What Subjects Remember

Oral recall of information has also been frequently used as a measure of the information retained. Assessment of comprehension as measured by oral recalls gained impetus in the 1970's when many systems for making comparisons of input and recall protocols were developed. Many of these systems have been described under the research on written language and often, the same researchers conducted studies in which oral recall or written recall was used.

A study by Tierney, Bridge and Cera (1978) was conducted to define the discourse processing operations of children when reading a non-narrative text. Specifically, they looked at the nature of explicit and inferred information retrieved under free recall and probe conditions.

Their subjects were third graders who were dichotomized into good and poor readers. The informational passage was about dinosaurs. An attempt was made to control for recency and primacy effects in memory by giving another passage to read before the subjects were asked to recall. The rationale for this procedure was that in school students were often involved with other subjects before recalling what they had learned. Probed recalls were added when the free recall was exhausted. The system of text analysis used was that devised by Frederiksen (1975b). Tierney, Bridge and Cera found that for many of the students in the free recall, more explicit than inferred information was rendered, but when they were probed, the ratio of explicit to inferred information changed. However, good readers always gave more inferential information than did poor readers.

They concluded that discourse processing involved two basic underlying processes; that is, readers abstract and construct information in a recall. In abstracting, readers "(1) glean what might be considered relevant units from the text and (2) summarize the ideas into a manageable form in accordance with what could be handled by the memory system" (p. 552). In constructing information, readers "process the input data, using information from the text in association with their background knowledge to construct a meaningful interpretation"

(p. 554).

Mandler and Johnson (1977) focussed on recall of stories and refined the concept of story grammar. To test their hypothesis that a particular form of story structure would influence encoding and retrieval, 21 subjects from each of the first and fourth grades were selected. A similar number of adults - students - were also tested. Each subject recalled orally, two stories 24 hours apart. Instructions were that verbatim recall was preferable. Mandler and Johnson found that the recall protocols of both the immediate and delayed responses were similar. They found that generally speaking adults recalled more. They recalled settings, beginnings, reactions, attempts and endings. Only the node, outcomes, did not show a significant age trend. The main differences in the story schemata of the younger children was the emphasis placed on outcomes rather than on other story parts.

Mandler and Johnson concluded that recall does not primarily reflect a lack of comprehension, but the schemata which young children use to organize their recall. Children's recalls emphasize the outcomes of action sequences rather than the actions themselves. In general, younger subjects were aware of the structure of stories and possessed a schema similar to the adults with which to retrieve information.

Other research using story recalls (Rumelhart, 1977; Stein and Glenn, 1979) revealed that readers use their story schemas as a guide to comprehension during the processing of incoming information and as a guide to determining strategies during recall.

A category system for analysing recalls was developed by Drum and Lantaff (1977a). There were five categories: text specific, text entailed, text elicited, text evoked, and text external which represented a range of information from being highly constrained by the text to information that was idiosyncratic to the reader.

In order to test the feasibility of their category system, Drum and Lantaff (1977b) analysed the recall protocols of sixteen grade eight readers (eight able readers and eight below average readers) who were asked to read a non-narrative passage. The results of this study indicated that the able readers remembered more specific information from the text than did the below average readers. They were to integrate this information into larger units (text entailed) and supplement it with information outside the text but related to their experiences (text experiential).

Furniss (1978) used Drum's categories to investigate whether differences occurred in the recalls of 140 grade six readers who read narrative and information type passages. Readers recalled significantly more information from the narrative as opposed to the information type passage.

The category system of Drum and Lantaff (1977a) has been modified and revised by Fagan (1984) on a number of occasions. During the past several years a number of studies have been conducted (Beebe, 1981; Brailsford, 1981; Brake, 1981; Clarke, 1981; Kavanagh, 1981; Machura, 1981; Coles, 1982; Cronin, 1982) on one or another variation of this system of categories.

Brake (1981), Machura (1981) and Clarke (1981) investigated

differences between high and low reader groups - Brake at a grade two level, Machura at a grade four level and Clarke at a grade six level. In all studies, no differences across categories between reader groups was found. However, Brake, who also had her subjects read the input passage silently or orally, found that more verbatim recall occurred after the oral reading input, and more erroneous information resulted after the subjects had read silently. She hypothesized that the necessity for precision in oral reading caused the subjects to focus more on specific information units and retain them for later recall.

The reason for the lack of significant differences between reader groups could be that in all three experiments, the subjects were asked to read passages at their instructional level. A study by Kavanagh (1981) with a group of readers who made gains of two years in a remedial program and a group who showed no gains, confirmed that when passages were on the instructional level of the subjects, no differences occurred across categories at the time of entering the program. However a different pattern emerged for passages at the frustration level. At that level, the readers who did not make gains initially produced more erroneous data and more information related to their experiences. By the end of the program, the gain group readers were recalling more specific information and more information based on inferences.

A study by Fagan (1983) on the latest revision of the category system (the one used in this study) showed that differences occurred between high and low readers at a grade six level, with the high group recalling significantly more inferential type information.

Brailsford (1981) carried out a teaching study to determine the effects of training in cognitive synthesis on reading achievement. Subjects were 24, 12-year old learning disabled children. An experimental group was given instruction on information processing strategies. The results showed that there were no significant differences between the groups on information recalled within the various categories, but the experimental group obtained significantly higher instructional reading levels on the Standard Reading Inventory than did the control group. However, the means for the experimental group on text entailed information were higher.

In an investigation to examine the effect of miscues and recall strategies on comprehension, Beebe (1981) found that (a) ability to recall text entailed information did have a positive effect on reading comprehension, (b) the extent to which the reader uses his appropriate background information affects comprehension positively and (c) text external information was deemed as non-effective in comprehension. Her conclusion was that the most crucial category of information was text-entailed which helps in inferencing and synthesizing.

Cronin (1982) also explored the relationship between miscues, recall strategies and comprehension. Unlike Beebe (1981) who found that recall of synthesized units generally accompanied the recall of specific association units, Cronin (1982) found that recall of specific associations was inversely related to the number of large synthesized units in the recall. Cronin speculated that this dicrepancy of findings may have been due to the different length of passages used in the two studies. Cronin also found that the production of inferences

also accompanied the production of elaborations or information relevant to the reader's experience.

Coles (1982) employed the category system to investigate whether fourth grade students employed similar cognitive processing strategies when recalling information presented through reading and listening, and whether these strategies were similarly used by good as well as by poor readers. She found that performance levels of able readers were significantly higher than those of less able readers. Regardless of input, similar thought processes were employed. However, a significant difference was noticed in the amount of synthesis and summaries of able readers in the listening input.

Summary

Like the use of written recalls, oral recalls have also been employed to determine the nature of the information retrieved and the strategies engaged in while doing so. The Category System for Recall Analysis has been used in a number of studies and appears to be fruitful in assessing output of different subjects under various conditions.

A Comparison of Oral and Written Recalls as Measures of Remembering

Very few studies have been found in which information retrieved in an oral mode has been compared with information retrieved in a written mode.

One such study was conducted by McConaughy (1982) who

investigated the oral and written recalls of 42 good and poor sixth grade readers to see whether poor readers were able to attend to important information to the same extent as good readers, and if so, whether differences ocurred under the different receptive modalities of reading and listening. Secondly, she also wanted to find out whether poor readers differed from good readers in terms of fluency or "surface features" with which a person tells a story orally as compared to mechanics used in conveying a story in written form. Finally, she wanted to see whether poor readers employed a different story schema when retrieving story information.

Four short stories with a common theme were used in the study and the readability level was that of grade four. A different story was presented in each of the four conditions - listening - oral recall; reading - oral recall; listening - written recall; reading - written recall. In the listening input mode, students heard a tape recorded version of the story read by the experimenter, while for the reading input, stories were presented in a single paragraph.

After listening to, or reading a story, students were instructed to summarize the story, telling only what they considered to be the most important parts for the meaning of the story. Students were told that they did not have to retell the story exactly as it was written, or, as they had heard it, but it was necessary that they include everything they considered important.

The results revealed that there was no main effect for reader level; that is, regardless of the input and output mode, good and poor readers were able to pick out the most important propositions for their

summaries and leave out irrelevant details. This was contrary to the expectations of the author who believed high and low readers would differ in the nature of the information retrieved. There was a significant main effect for modality. Significantly, more inferences were produced in the listening input - oral output situation.

A second study which compared the written and oral recalls of subjects was done by Cameron (1979). He investigated the nature of the information which children ages nine, ten, and eleven retrieved after viewing and listening to a short film. Cameron's (1979) study focussed on the written recalls of the subject and he compared the results to the oral recalls of the same subjects in a companion study by Fagan (1978).

Cameron found, that in comparing written to oral recalls, the length of the t-unit in written language was greater than the t-unit length in oral language. Mazes occurred more frequently in the children's oral language than in their written language.

Cameron also found that the nature of information within t-units also differed across oral and written language. There were generally more denotational information (nouns, verbs, adjectives, etc.), more relational information (referential connectives), and a greater variety of syntactic structures within t-units of written language than in oral language. The one exception was for logical information where more such information occurred within t-units in oral language. Cameron pointed out that this was due to the overuse of "and" (a logical connective) in the children's oral language. The tendency for oral language to differ from written language was more pronounced across age

levels.

A third study by Fea (1953) had children in grades five and six write and tell what they could remember after reading passages from the Gray Oral Reading Test. In this case there were a number of similarities between both modes of recall; verbal memories evoked (facts recalled), number of words used, number of different words employed, number of hard words, number of phrases, and degree of subordination.

Summary

Oral and written recalls have been used independently in studies to assess the nature of information retrieved and/or the strategies subjects engage in while retrieving information. Few studies exist which compared the oral and written recalls of subjects. The three studies reported in this category suggest that the mode of output may result in differences in the nature of the information retrieved.

CHAPTER III

THE EXPERIMENTAL DESIGN

Included in this chapter is a description of the selection of the sample, the nature of the testing instrument, procedure for gathering the data, recall categories for coding the data, and the statistical analysis of the data.

The Selection of the Sample

The sample for this study was drawn from the grade four student population in five elementary schools in the Edmonton Public School District.

Grade four was chosen because at this level children are beginning to focus on "reading to learn" as opposed to "learning to read." In her book Stages of Reading Development, Chall (1983) considers grade four to be at the beginning of the third stage of reading. She has this to say:

> In a sense, entering Stage 3 fits the traditional conception of the difference between primary and later schooling: in the primary grades, children learn to read; in the higher grades; they read to learn. During Stages 1 and 2 what is learned concerns more the relating of print to speech . . . Very little information about the world is learned from reading before stage 3; more is learned from listening and watching. It is with the beginning of Stage 3 that reading begins to compete with these other means of knowing. (p 20-21)

There were a total of 193 grade four students in the five schools. The first criterion for selecting the sample was that the students would be average readers defined as scoring between the mean

and the upper limits of one standard deviation. The source of the reading scores (percentiles) was the Edmonton Public Schools Elementary Reading Test. These scores were obtained from the school records. Because the test had not yet been administered during the grade four year, the grade three results were used. The number of students falling between the mean percentile (55.9) and the upper limit of one standard deviation (69.3) was 82. All students within this group were native English speakers, which constituted the second criterion for the sample choice. From this group of 82, forty students were chosen randomly. Teachers were then asked to rate these students as being average or above in terms of their speaking and writing abilities (third criterion). All students fell within this rating.

The forty students were then randomly divided into two groups of 20, one group which would tell about what they had read, and one group which would write about what they had read. The reading percentile scores and the number of boys and girls in the sample are given in Table 1. The mean percentile score for the Speak Group was 64.6 compared to 63.5 for the Write Group. There were 10 boys and 10 girls in the Speak group and 13 boys and 7 girls in the Write group. All schools were located in a middle class area.

Validity and Reliability of the Edmonton Public Schools Elementary Reading Test

The comprehension section of the Reading Test was used in selecting the sample. This section contained 77 questions which were designed to assess vocabulary and literal, inferential and critical comprehension.

Table 1

Reading Scores of Sample

Subject	Comprehension Mean Percentile Score (E.P.S. Reading Elementary Test)	Boys/ Girls	Speaker Writer
01	66	G	Speaker
02	66	G	Speaker
03	59	B	Speaker
04	69	G	Speaker
05	63	B	Speaker
06	68	G	Speaker
07	64	B	Speaker
08	63	G	Speaker
09	69	B	Speaker
10	68	B	Speaker
11	67	B	Speaker
12	64	G	Speaker
13	56	G	Speaker
14	64	G	Speaker
15	65	B	Speaker
16	58	B	Speaker
17	69	G	Speaker
18	63	B	Speaker
19	68	G	Speaker
20	64	B	Speaker

Table 1 (continued)

Subject	Comprehension Mean Percentile Score (E.P.S. Reading Elementary Test)	Boys/ Girls	Speaker Writer
21	63	B	Writer
22	64	B	Writer
23	62	B	Writer
24	64	G	Writer
25	68	G	Writer
26	58	B	Writer
27	60	B	Writer
28	60	B	Writer
29	59	B	Writer
30	64	G	Writer
31	67	G	Writer
32	64	B	Writer
33	59	G	Writer
34	66	B	Writer
35	62	B	Writer
36	68	G	Writer
37	61	B	Writer
38	62	B	Writer
39	68	B	Writer
40	68	G	Writer

Content validity may be claimed for the test in that the items were chosen from instruction materials used in the School System, and from a corpus of items made available through Houghton-Mifflin Publishing Company. The test items were rated by committees of teachers and reading consultants as being appropriate.

Reliability was calculated by using the Kuder-Richardson Formula 20. The coefficient of reliability obtained was 0.932.

Testing Instrument

An informational passage "Totem Poles" (See Appendix A) was selected. The topic deals with the documentation of the history - lives and beliefs - of the native people of Canada's North West Coast. The description includes the basic religious tenets of these people which is portrayed by the totem pole. Furthermore, a description of the preparation of the pole and the accompanying celebrations of the hoisting of the pole is presented. The passage length in words is 333 words. There are 33 clauses. The readability level is that of grade four. The passage was selected from the Language Development Reading Networks, a Nelson Canada Publication (1983). The present edition of this series is recommended for use in the classrooms of Edmonton Public Schools.

The rationale underlying the selection of an informational passage was that students from grade four have begun to be inundated with informational material across the curriculum. Students at this level are usually required to tell or write about content type material.

Procedure for Gathering the Data

Before proceeding to collect the data, the investigator received parental and child permission for each subject to be included in the sample. A letter requesting permission is given in Appendix B.

Prior to the administration of the passage the investigator met with each student who spoke, and with groups of two to five students who wrote, in a quiet place where they were no distractions. After informal introductions, the investigator explained to each and all students why she was engaged in this kind of activity. She emphasized that this was not a test, and that their performances would in no way affect their class marks. However, it was indeed important for them to respond as best they could. Any questions were answered and clarified. The directions were then read to each student speaking, and to each group of students writing.

Directions

Speak Group

This is not a test. I am going to give you a passage to read silently. Right after you have finished reading the passage, I want you to tell me as much as you can remember about what you have read. I will be tape recording you, so I can remember what you have said. We will first do a practice passage, so you can get the idea of what I want you to do.

Here is the practice passage. (See Appendix C).

(Give out practice passage).

Now I want you to read it silently, and then tell me as much as

you can remember.

(Allow time for child to read).

Alright, now tell me all you can remember.

(Tape)

(If child hesitates for a long while, say, "Is there anything else you can remember?")

(When everyone is finished)

Does everyone understand what you have to do? Are there any questions? Now here's the passage, Remember, read the passage and tell me all that you can remember.

Write Group

This is not a test. I am going to give you a passage to read silently. Right after you have finished reading the passage, I want you to write down as much as you can remember about what you have read. If you do not know how to spell a word, raise your hand, and I will write it for you. You must work on your own. We will first do a practice passage, so that you can get the idea of what I want you to do.

Here is the practice passage.

Now I want you to read it silently, and then write as much as you can remember.

(Allow time for children to read and write. Check while students are writing. If a student seems to have finished say quietly, "is there anything else you can remember?")

(When everyone is finished).

Does everyone understand what you have to do? Are there any

questions? Now here's the passage. Remember, read the passage and write all that you can remember.

Coding the Data

Each tape recorded protocol was transcribed. All protocols and the test passage were divided into clauses. In the protocols some incomplete t-units were identified which according to Fagan's (1984) scoring criteria are equivalent to clausal units. The units were then assigned to one of the seven categories indicated in Chapter 1. Percentages of clausal units used per category were then derived.

Interrater reliability was calculated by having two independent raters code ten percent of the protocols using the Arrington Formula (Feifel and Lorge, 1950),

$$\frac{2 \times \text{Agreements}}{(2 \times \text{Agreements}) + \text{Disagreements}}$$

The level of agreement between both raters for clausal/incomplete t-unit division and assignment to recall categories was 1.00 and .923, respectively.

Statistical Analysis of the Data

The statistical treatment of the data involved a one-way analysis of variance with repeated measures on the mode of recall.

Summary

Forty grade four subjects were randomly selected from five

elementary schools in the Edmonton Public School District. Twenty of these were then randomly selected to be speakers. The other twenty were writers. All students were required to read an informational passage and then tell or write what the passage was about.

Each recall protocol was then divided into clausal units and these were then assigned to one of seven recall categories. In order to determine if differences existed between groups, a one-way analysis of variance with repeated measures was used.

CHAPTER IV

FINDINGS OF THE STUDY

This study was designed to analyse the oral and written recalls of grade four average readers. The statistical design was a one way analysis of variance with repeated measures with mode of output being the repeated factor.

The null hypotheses from Chapter one are restated below.

Null Hypothesis 1

There will be no significant difference between the length of oral and written recalls in terms of the number of clauses/incomplete units.

The data from the analysis of variance are reported in Table 2. On the basis of these data, the hypothesis cannot be rejected.

Discussion

The means of 19.9 for oral language recalls and 18.5 for written language recalls indicate the similarity of the length of oral and written recalls. In Cameron's (1979) study the grade four children differed in the length of oral and written recalls in terms of number of words per t-unit, with more words per t-unit being used in the written productions. When Cameron analysed for number of clauses by mode he found that this group differed significantly on the number of adjective clauses but not on the number of adverb clauses. More adjective clauses occurred in the written recalls.

Table 2

Analysis of Variance with Repeated Measures for Length of Recall

Source of Variation	SS	DF	MS	F	P
Between People	726.47	19	38.23		
Within People	568.50	20	28.42		
Rept. Measures	21.02	1	21.02		
Residual	547.47	19	28.81	.73	.40
Total	1294.97	39			

	Means	Standard Deviation
Oral	19.95	5.19
Written	18.50	6.32

When analysing the data of this study, the writer noted that the oral recalls resembled the written recalls in terms of structures used. There were very few mazes in the oral recalls and almost no incomplete t-units. This finding is also unlike Cameron who found that at the grade four level, the children used significantly more mazes and moré incomplete t-units in their oral language than in their written language. The difference in findings could be due to the nature of the experiment. While Cameron had his students tell or write about a film (the telling was done by phone), in the present study the oral and written recalls were obtained under similar conditions. It may also be that an informational type passage is more constraining than a narrative in determining the nature of the structures used at recall time.

Null Hypothesis 2

There will be no significant differences between the oral and written recall of grade four average readers in terms of the nature of the information retrieved as described by each of the following categories.

A - Text Exact

B - Text Specific

C - Text Embedded

D - Text Entailed

E - Text Inferential

F - Text Experiential

G - Text Erroneous

The data from the analyses of variance are given in Tables 3-9. The hypotheses may be considered a single hypothesis with seven sub-hypotheses since each category of recall was tested separately. The probability level accepted for significant differences was .05.

An analyses of the data in Tables 3-9 indicate that the hypothesis can only be rejected for Category F. There were no significant differences between the oral and written output for each of the other six categories.

Discussion

A null hypothesis was stated for this study since research did not provide sufficient direction on which to predict the outcome. However, language theory does suggest oral-written language differences. The findings in this study on a comparison of oral and written language with the exception of category F, are not consistent with the theoretical aspects of the relationship of oral-written language which would lead one to expect differences. Although category F met the acceptable level for statistical significance, the amount of information used in this category was minimal as indicated by the means in Table 8. Thus for all practical intents and purposes the findings in this category may be ignored. The discussion following will be concerned with addressing suggested theoretical differences between oral and written language and the lack of such findings in this study.

Vygotsky's (1967) argument for oral-written language differences is based on his theory of their development. According to Vygotsky,

Table 3

Analysis of Variance with Repeated Measures for Category A

Source of Variation	SS	DF	MS	F	P
Between People	12.14	19	.63		
Within People	15.13	20	.75		
Rept. Measures	.12	1	.12		
Residual	15.01	19	.79	.15	.69
Total	27.28	39			

	Means	Standard Deviation
Oral	7.7	7.3
Written	6.6	9.4

Table 4

Analysis of Variance with Repeated Measures for Category B

Source of Variation	SS	DF	MS	F	P
Between People	53.63	19	2.82		
Within People	24.05	20	1.20		
Rept. Measures	2.65	1	2.65		
Residual	21.40	19	1.12	2.35	.14
Total	77.68	39			

	Means	Standard Deviation
Oral	33.5	13.3
Written	28.3	14.6

Table 5

Analysis of Variance with Repeated Measures for Category C

Source of Variation	SS	DF	MS	F	P
Between People	58.69	19	3.08		
Within People	34.55	20	1.72		
Rept. Measures	1.33	1	1.33		
Residual	33.22	19	1.74	.76	.39
Total	93.25	39			

	Means	Standard Deviation
Oral	25.2	12.8
Written	21.5	17.8

Table 6

Analysis of Variance with Repeated Measures for Category D

Source of Variation	SS	DF	MS	F	P
Between People	51.34	19	2.70		
Within People	18.79	20	.93		
Rept. Measures	1.02	1	1.02		
Residual	17.77	19	.93	1.09	.30
Total	70.14	39			

	Means	Standard Deviation
Oral	16.3	12.5
Written	13.1	14.4

Table 7

Analysis of Variance with Repeated Measures for Category E

Source of Variation	SS	DF	MS	F	P
Between People	36.08	19	1.89		
Within People	19.11	20	.95		
Rept. Measures	1.52	1	1.52		
Residual	17.58	19	.92	1.64	.21
Total	55.19	39			

	Means	Standard Deviation
Oral	14.2	10.7
Written	18.1	12.9

Table 8

Analysis of Variance with Repeated Measures for Category F

Source of Variation	SS	DF	MS	F	P
Between People	21.48	19	1.13		
Within People	15.11	20	.75		
Rept. Measures	4.22	1	4.22		
Residual	10.89	19	.57	7.37	.01
Total	36.60	39			

	Means	Standard Deviation
Oral	1.0	3.0
Written	7.5	12.6

Table 9

Analysis of Variance with Repeated Measures for Category G

Source of Variation	SS	DF	MS	F	P
Between People	217.87	19	11.46		
Within People	293.50	20	14.67		
Rept. Measures	50.62	1	50.62		
Residual	242.87	19	12.87	3.96	.06
Total	511.37	39			

	Means	Standard Deviation
Oral	2.5	11.1
Written	4.9	47.9

speech preceeds writing and first emerges as a social phenomenon. As the child grows, this social thought goes through a transition stage. Through this transitional continuum from social to psychological is manifested the phenomenon of vocalized inner speech. Vygotsky (1967) says: . . . The data obtained strongly suggests the hypothesis that egocentric speech is a transitional stage in the evolution from vocal to inner speech (p. 17). According to Vygotsky, a child's schema of language development starts first with social speech (vocal or oral), then with egocentric speech and finally it develops into inner speech. Social speech includes vocal or oral speech. As the decrease of vocal, external or oral speech becomes pronounced, simultaneously the child begins to abstract. Here the child "images" words rather than the pronounciation.

Written language, according to Vygotsky (1967) differs from oral speech in both structure and mode of functioning. Vygotsky explains:

> Written speech is a separate linguistic function . . . Even its minimal development requires a high level of abstraction. It is speech in thought and image only, lacking the musical expressive, intonational qualities of oral speech. In learning to write the child must disengage himself from the sensory aspect of speech and replace words with images of words. (p. 98)

Since Vygotsky's theory deals with the origin and development of oral and written language, it could be argued that these differences do not manifest themselves at a later point in language development, at the fourth grade level. Thus while Vygotsky's theory may suggest differences at the beginning of school, it may not be applicable to higher grade levels. The findings of this study would suggest this to be the case.

One aspect of Vygotsky's theory that could apply to all levels of oral language development and distinguish it from written language, is the intonational qualities of the oral mode. Rubin (1978) also stresses this as a significant difference between oral and written language. Intonation, for example, may help clarify ambiguous references as in the sentence, "John hit Mike and then Joey hit him." However, in this study, no such ambiguities were encountered and thus this difference between the oral and written mode would not be realized.

A third point of differentiation suggested by Vygotsky's theory is that the factor of motivation is not present to the same degree in written language as in oral language since an audience is usually absent. While in conversation, every sentence is influenced by an immediate motive and as these motives are monitored via feedback, it is assumed that responses may also change. Vygotsky claims that the motives for writing are more abstract and further removed from the immediate dynamic situation as in speaking.

In the present study, the students who wrote were given a definite motive which was to be fulfilled immediately. Also, for those students giving an oral recall, there was minimal feedback. Consequently, both oral and written situations were similar with respect to the degree of motivation and feedback involved.

The use of deictic terms is a factor specified by Rubin (1978) as distinguishing oral and written language. Deictic terms refer to those words which are used to indicate space and time (here, now etc.). It seems that this factor might be more significant in interpreting oral or written language than in the expression of these language modes. In

this study, the students were required to tell or write about a specific text. Since the referents were specific to this text and since the researcher knew the text, the use of deictic terms would not be a distinguishing factor between oral and written language.

A final factor discussed by Vygotsky (1967) and Schallert and others (1977) that may distinguish oral from written language is the "form" of the language and its suitability for particular content. Schallert and others (1977) point out that:

> Oral language is said to be the language of common sense knowledge while written language is suited to representing scientific and philosophical knowledge . . . Common sense knowledge is tied to actions . . . and to concrete events. Scientific knowledge is abstract, general and logical. (p. 15)

Schallart and others (1977) argue that while there is a strong tendency for speech to be used in informal social communication, writing is used for formal informational purposes.

In addition, according to Vygotsky (1967) writing requires deliberate, analytical action; that is the writer is usually more conscious of each sequence of ideas and their relationships, while in speech the speaker attends minimally to the surface features and specific organizational structure of the idea produced.

The first point regarding form and content may be true in the larger and more general use of language. However, as Rubin (1978) points out writing and speech can be used equally well for similar functions, as was the case in this study.

The second point regarding the degree of control over the actual

formation of the language product, while again a factor in the larger sense was not a distinguishing factor of oral and written language in this study. This is due to the nature of the categories which focus on the cognitive rather than on the specific syntactic arrangement of words. The incomplete t-unit, for example, is a permissible syntactic unit and is considered equivalent to the clause for the purpose of assigning information to categories. The incomplete t-unit refers to a cognitive idea that lacks formal organization, as the following item illustrates "The boy was running for the ship, hiding from a policeman, anxious to reach the dock." (Fagan, 1978, p. 106).

The few research studies located which assessed the oral and written production of children in the same experiment gave little direction regarding oral-written language differences. Cameron's (1979) study indicated a number of differences between the oral and written production of children ages nine, ten, and eleven. However, Cameron's input was a film which did not provide as much structure as the passage in this study. Furthermore, the film lent itself to narration rather than description, and lastly, the analysis was mainly on the basis of syntactic issues, whereas the focus of this study is content.

In the Fea (1953) and McConaughy (1982) studies, the input was narrative. Both studies investigated syntactic aspects of the recalls although Fea did include some analysis of semantic factors.

In light of possible differences between oral and written language production, it may be concluded from this study that when specific informational input is given and when the results are analysed

according to the Category System for Recall Analysis, grade four average readers retrieve similar information in both modes. Thus the written mode is as valid as the oral mode in assessing the information used and strategies employed in a recall.

One point that may be of interest in the findings regarding the similarity of information retrieved in oral and written modes is the quantity or degree of information types retrieved. As the means in Tables 3-9 indicate, the children most often (about 50 per cent of the time) retrieved information that was specific in terms of the text. This information was either specific in terms of individual clauses or as a result of combining two or more clauses. This finding is similar to Fagan's (1983) findings on the oral recalls of high and low readers at the grade six level. Information necessitating integrating clauses into larger units and the making of inferences ranked second in terms of their frequency of occurrence in the recalls. The kinds of information least recalled included exact information from the text, experiential information, and erroneous data.

Summary

The findings revealed that there were no significant differences for oral and written recalls in the percentage of recall units falling into each category except that of category F (Experiential). Only a minimal amount of information was recalled in this category as indicated by the low mean scores. Generally speaking, the findings of the study revealed that oral and written recalls do not differentiate in terms of the nature of the information retrieved. Consequently, the

oral and written recalls are equally valid in assessing information retrieval.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS AND IMPLICATIONS

This chapter will present a summary of the study, findings and conclusions, and implications for further research and for the classroom/clinic.

Summary of the Study

The main purpose of this study was to compare the cognitive strategies used in oral and written recalls in terms of the information retrieved.

Forty average grade four readers from five schools within the Edmonton Public School District participated in the study. The sample was randomly divided between speakers and writers. The subjects were selected on the basis of their comprehension scores on the Edmonton Public Schools Reading Test administered in May, 1983.

Each subject was presented with an informational passage to read silently. Immediately after the reading, twenty of the subjects designated as the "speakers" were required to tell all they could remember about the informational passage. Each of the twenty oral responses was tape recorded and later transcribed. In small groups between two to five, each of the other twenty subjects was asked to write all he/she could remember about the passage.

The recall protocols were divided into clausal and incomplete t-units. These were compared to the clausal units of the text and were then assigned to one of seven categories according to the information

recalled (text exact, text specific, text embedded, text entailed, text inferential, text experiential and text erroneous). These categories comprise the Category System for Recall Analysis devised by Fagan (1984).

The statistical analysis of the data involved a one-way analysis of variance with repeated measures.

Findings and Conclusions

Oral and written recalls were examined to determine whether writers recall information differently from speakers after they silently read an informational passage. Analysis of the data revealed that there were no significant differences between oral and written recalls in terms of the nature of the information retrieved. With the exception of one category - text experiential - in which very little information was recalled, it can be concluded that speakers and writers employ similar strategies in retrieving information after having read an informational passage.

Implications for Further Research

1. This study found no significant differences between oral and written recalls in terms of the nature of the information retrieved with the exception of category F - text experiential. Further research needs to be conducted to investigate differences in oral and written recalls in terms of the nature of the information retrieved at other grade levels.

2. The results of this research can only be generalized to "average"

readers at the fourth grade level. Further research needs to be conducted to investigate if there are differences between oral and written recalls for other reader levels. Perhaps, research done with above average and below average readers might yield different results.

3. The passage in this study was informative in nature. Future research should be conducted using other kinds of passages such as expository and narrative.

4. It is possible that the manner in which students retrieve information is influenced by the nature of the instruction they have received. A study might be conducted to investigate if any relationship exists between the type of instruction the students have received and the cognitive strategies employed in an oral versus a written recall.

5. The subjects of this study were rated at least average in speaking and writing abilities. Research could be conducted with subjects of varying speaking and writing abilities to determine if results similar to this study would ensue.

6. It is the general belief that girls are often considered more verbally facile and fluent in speaking than boys. Perhaps research could be conducted between the sexes to determine if there are significant differences between the two concerning oral and written recalls in terms of the nature of the information retrieved.

Implications for Classroom/Clinic

The implication arising from this study is that the categories may be used to assess strategies for retrieving information in oral or

written mode.

Learning theory incorporates assessment of children's knowledge of what has been taught. In order to assess students' comprehension of information learned, one way is to examine the nature of the information retrieved. The category system was been used to assess such information on the basis of oral recalls (see Chapter II). Since the results of the study indicated no significant differences between oral and written recalls in terms of the nature of the information retrieved, one could only imply that the category system is a viable method in determining the strategies children employ when writing as well as speaking. Consequently, teachers/clinicians could conceivably spend less time in taping and transcribing oral recalls, and hence become more flexible in the use of this category system for assessing the nature of information retrieved.

Summary

This study investigated the oral and written recalls of grade four average readers who had been asked to read an information type passage. The recalls were analysed according to a system of categories based on the nature of the information retrieved.

While it was not possible to predict the outcome on the basis of the research available, theoretical aspects of oral and written language would lead one to believe that there would be differences in the oral and written modes. With the exception of one category in which the amount of information retrieved was minimal, there were no significant differences between the oral and written recalls in terms

of the nature of the information retrieved.

It may be concluded that the oral and written modes are equally valid in assessing information retrieved and that the category system for recall analysis is viable as a method for assessing such information retrieved by average readers at the grade four level.

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APPENDICES

APPENDIX A

The Reading Selection Analysed into Clausal Units

/Totem poles are documents carved in wood./ Most totem poles were made long ago by native peoples of Canada's Northwest Coast./ Totem poles tell about the lives and beliefs of these coastal people./

The native people believed that once upon a time,/(when the world began) animals and people could talk to each other./ They gave each other gifts./ Animals could turn into people by taking off their skins,/ and people could turn into animals./

The carvings on the totem poles document these beliefs./ The totem pole figures are carved to look like humans, animals, and birds./ The animals are frequently carved with human faces and hands./ They often sit or stand up straight like human beings./

The native people of the Pacific Northwest recognized each totem pole figure./ They knew that a big ugly mouth represented the shark./ A bird with a hook in its beak was the eagle./ An animal with cutting teeth, a scaly tail, and a stick between its front paws was the beaver./

Totem poles belonged to the native families/ who put them up./ The carved figures on a family totem pole documented the names, rights, and riches of the family./ The figures also helped the family to remember important stories in its history./ Like the poles themselves, these stories belonged to the family./ Nobody else could tell them./

Totem poles were made from tall cedar trees./ First a tree was cut down and taken into the village./ Then a skilled artist would carve and paint it./ The artist used paints made from natural materials like charcoal, berry roots, clam shells, and fish oil./

When the totem pole was ready,/ it was raised and set upright in the village./ All the villagers celebrated the raising of the totem pole./ People feasted and danced./ A storyteller told the stories about the figures on the pole./ Everyone listened carefully to be sure the storyteller was telling the tales correctly./ In this way, the history of the family was passed on./

APPENDIX B

Letter of Consent

April 6th, 1984

Dear Parent,

As part of the requirements for my Master's degree, I am doing research on how children recall information on what they have read. This study has been approved by the Edmonton Public School Board.

It would be most helpful to me if _____ could take part in the study. The study will take place in April. It will take about forty-five minutes.

Should you require further information about the project, please contact the school. If for any reason you do not wish your child to take part in the project, please sign below and return by Monday, April 9th, 1984.

Yours sincerely,

_____

I do not wish _____ to be included in this project.

_____
Parent's Signature

APPENDIX C

Practice Passage

Cats

There are many kinds of cats.
Some cats have long fur.
Some cats have short fur.
Some cats have no tails.
Cats make good pets.
But cats also keep away mice.
That is why cats are nearly
always found on farms.